2. **Technical Review Process**

   a. The following flowchart provides, for illustrative purposes, the major steps in the technical review process:

   ![Flowchart](image)

   "Group Study Process" may include a consolidated IRS or a proactive utility determination of interconnection requirements covering multiple Generating Facilities.
b. Explanation of the screens used in the technical review process:

**Introduction:**

The technical review process allows for the timely approval for the interconnection of Generating Facilities to the Company’s Distribution System that will operate in parallel with the Company’s Distribution System. The technical review process includes a screening to determine if a Generating Facility qualifies for Simplified Interconnection, or if Supplemental Review is needed to determine requirements, if any, beyond those of a Simplified Interconnection, or if an Interconnection Requirement Study (IRS) is needed to determine interconnection requirements. The Company will perform an Initial Technical Review unless (1) an Applicant applies for an IRS directly, (2) an Applicant is not connecting to the Company’s Distribution System, or (3) an Applicant is interconnecting with equipment that is not UL 1741 certified. If (1), (2), or (3) applies, the Applicant will proceed directly to an IRS.

Note: Failure to pass any screen of the Initial Technical Review process or Supplemental Review process means only that further review may be required to determine additional requirements, if any, or if an IRS is needed before the Generating Facility can be approved for interconnection with the Company’s Distribution System. It does not mean that the Generating Facility cannot be interconnected. Though not explicitly covered in the review process, the Generation Facility shall be designed to meet all of the applicable requirements in Appendix I of Rule 14H.

**Purpose:**

The technical review process determines the following:
1) If a Generating Facility qualifies for Simplified Interconnection,

2) If a Generating Facility can be made to qualify for interconnection by performing a Supplemental Review that will be able to determine additional requirements, if any, or

3) If an IRS is required, the cost estimates and rough schedule for performing the IRS.

**Initial Technical Review Screens:**

**Screen 1:** If the proposed Generating Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, does it cause unacceptable imbalance between the two phases of the 240 volt service?

*If Yes*, perform Supplemental Review.

*If No*, continue to Screen 2.

**Significance:** Generating Facilities connected to a single-phase transformer with 120/240 V secondary voltage must be installed such that the aggregated gross output is as balanced as practicable between the two phases of the 240 volt service.

**Screen 2:** Is the Point of Interconnection to a Network System?

*If Yes*, perform Supplemental Review.

*If No*, continue to Screen 3.

**Significance:** Special considerations must be given to Generating Facilities proposed to be installed on a Network System because of the design and operational aspects of network protectors. There are no such considerations for radial Distribution Systems.
Screen 3: If exporting power across the Point of Interconnection, can the power export cause a reversal of power flow at any voltage regulation device that is not bi-directional?

If Yes, perform Supplemental Review.

If No, continue to Screen 4.

Significance: If it can be assured that the Generating Facility will not export power, or if exported power will not cause a reversal of power flow at a voltage regulation device that is not designed to handle reverse power flow, the Company’s Distribution System does not need to be studied for load-carrying capability or Generating Facility power flow effects on the Company’s voltage regulators.

Screen 4: Is the aggregate Generating Facility capacity on the Line Section less than or equal to the greater of 15% of Line Section peak load or a percentage of minimum load predetermined and posted by the utility for that feeder?

If Yes, continue to Screen 5.

If No, perform Supplemental Review.

Significance: 1) Low penetration of Generating Facility installations will have a minimal impact on the operation and load restoration efforts of the Company’s Distribution System.

2) The operating requirements for a high penetration of Generating Facilities may be different since the impact on the Company’s Distribution System will no longer be minimal, therefore requiring additional study or controls.

Note 1: For an inverter-based Generating Facility (e.g., a photovoltaic facility), the facility capacity for purposes of this screen shall be a number calculated by taking
either project size in kW or AC inverter rating (whichever is lower) and applying to it a de-rating factor of 10%** to account for equipment inefficiencies, non-optimal installation conditions, and related factors. The same method shall be applied to determine the aggregate capacity of all inverter-based existing Generating Facilities on the feeder.

** Screen 5: ** Is the voltage flicker and/or drops associated with the Generating Facility within IEEE 519 or IEEE 1453 limits?

*If Yes,* continue to Screen 6.

*If No,* perform Supplemental Review.

**Significance:** 1) This screen addresses potential voltage fluctuation problems for Generating Facilities that start by motoring.

2) When starting, Generating Facilities should have minimal impact on the service voltage to other Customers.

3) This screen addresses voltage flicker at the Point of Interconnection caused by the Generating Facility. Passing this screen does not relieve the Customer from ensuring that its Generating Facility complies with the flicker requirements of Rule 14H.

**Screen 6:** Do the maximum aggregated gross ratings for all the Generating Facilities connected to a secondary distribution transformer exceed the transformer or secondary conductor rating, absent the Applicant’s generators?

*If Yes,* go to Supplemental Review.

*If No,* continue to Screen 7.

** Parties recognize that further discussions are required in the future to substantiate a 10% de-rate factor.
Significance: This screen addresses potential secondary transformer or secondary conductor overloads.

Screen 7: Is the Short Circuit Current Contribution Ratio within acceptable limits?  
If Yes, continue to Screen 8.  
If No, perform Supplemental Review.

When measured at primary side (high side) of a Dedicated Distribution Transformer serving a Generating Facility, the sum of the short circuit contribution ratios of all generating facilities connected to the Company’s Distribution System circuit that serves the Generating Facility must be less than or equal to 0.1 (10%).

Significance: If the Generating Facility passes this screen it can be expected that it will have no significant impact on the Company’s Distribution System’s short circuit duty, fault detection sensitivity, relay coordination or fuse-saving schemes.

Note 1: This Screen does not apply to Generating Facilities with a Gross Rating of 10 kW or less.

Note 2: The ampere rating of the Customer’s service equipment to be used in this evaluation will be that rating for which the customer’s utility service was originally sized or for which an upgrade has been approved. It is not the intent of this provision to allow increased export simply by increasing the size of the customer’s service panel, without separate approval for the resize.
**Screen 8:** Is the Short Circuit interrupting capability exceeded?

*If Yes,* perform Supplemental Review.

*If No,* continue to Screen 9.

When measured at the secondary side (low side) of a shared distribution transformer, the short circuit contribution of the proposed Generating Facility must be less than or equal to 2.5% of the interrupting rating of the Customer’s service equipment.

**Significance:** If the Generating Facility passes this screen it can be expected that it will have no significant impact on the Customer’s service equipment.

**Note 1:** This Screen does not apply to Generating Facilities with a Gross Rating of 10 kW or less.

**Note 2:** The ampere rating of the Customer’s service equipment to be used in this evaluation will be that rating for which the customer’s utility service was originally sized or for which an upgrade has been approved. It is not the intent of this provision to allow increased export simply by increasing the size of the customer’s service panel, without separate approval for the resize.

**Screen 9:** Is the Line Configuration Screen (see below) acceptable for Simplified Interconnection?

*If Yes,* continue to Screen 10.

*If No,* perform Supplemental Review.

**Line Configuration Screen:** Identify primary distribution line configuration that will serve the Generating Facility. Based on the type of interconnection to be used for the
Generating Facility, determine from the table below if the proposed Generating Facility passes the screen.

<table>
<thead>
<tr>
<th>Primary Distribution Line Type Configuration</th>
<th>Type of Interconnection to be Made to Primary Distribution Line</th>
<th>Results/Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-phase, three wire</td>
<td>Any type</td>
<td>Pass Screen</td>
</tr>
<tr>
<td>Three-phase, four wire</td>
<td>Single-phase, line-to-neutral</td>
<td>Pass Screen</td>
</tr>
<tr>
<td>Three-phase, four wire (For any line that has such a section OR mixed three wire and four wire)</td>
<td>All others</td>
<td>To pass, aggregate Generating Facility nameplate rating must be less than or equal to 10% of Line Section peak load</td>
</tr>
</tbody>
</table>

**Significance:** If the primary distribution line serving the Generating Facility is of a “three-wire” configuration, or if the Generating Facility’s distribution transformer is single-phase and connected in a line-to-neutral configuration, then there is no concern about overvoltages to the Company’s or other Customer’s equipment caused by loss of system neutral grounding during the operating time of the non-islanding protective function.

**Note 1:** This Screen does not apply to Generating Facilities with a Gross Rating of 10 kW or less.

**Screen 10:** Is the gross rating of the Generating Facility 10 kW or less?

*If Yes,* the Generating Facility qualifies for Simplified Interconnection. Skip remaining screens.

*If No,* continue to Screen 11.
**Significance:** The Generating Facility will have a minimal impact on fault current levels and any potential line over-voltages from loss of the Company’s Distribution System neutral grounding.

**Screen 11:** Is the Interconnection Request for an area where: (i) there are known, or posted, transient stability limitations, or (ii) the proposed Generating Facility has interdependencies, known to the Company, with Transmission System interconnection requests? Where (i) or (ii) above are met, could the impacts of the proposed Generating Facility to the Transmission System require an IRS?

*If Yes,* perform Supplemental Review.

*If No,* the Generating Facility qualifies for Simplified Interconnection.

**Significance:** Special consideration must be given to those areas identified as having current or future (due to currently pending interconnection requests) system dependency and stability concerns.

c. Within fifteen (15) business days of the date the Customer’s Interconnection Application is deemed complete, the Company will complete the Initial Technical Review and notify the Customer of the results. The Company, for good cause, may modify the time limits to conduct the Initial Technical Review and shall inform the Customer in writing of the need to modify the applicable time limits. The modified time limit shall be mutually agreed upon in writing between the Company and the Customer.

d. In the event that Supplemental Review is triggered by a failure of Screens 1 through 11, a quick review of the failed Screen(s) within the timeframe established for Initial Technical Review, or any modified time limits, may determine the requirements to address the failure(s), in which case Supplemental Review may not be necessary. Otherwise, Supplemental Review is required. Some examples of requirements that may be available
to address the failure of Screens 1 through 11 without the need for Supplemental Review include:

1. Replace an overloaded distribution transformer with a larger transformer.
2. Replace overloaded secondary conductors with larger conductor.
3. Installation of an appropriately sized grounding transformer or other means to effectively ground a generator.
4. Determine if phase balancing on the transformer is possible with minimal review.
5. If possible without further study, check if the Generating Facility will actually over stress equipment.

e. If a quick review of the failed Screen(s) results in interconnection requirements of equipment, space and/or data at the Generating Facility location to be provided by the Customer for use in conjunction with the Company’s Interconnection Facilities, the Customer must also complete a Facility Equipment List, which will identify such equipment, space and/or data. The Facility Equipment List will be included as Exhibit B to any interconnection agreement entered between the Company and the Customer. If requested, the Company will provide assistance to the Customer to complete the Facility Equipment List.

f. The Initial Technical Review will result in the Company providing either: (a) if all of the Initial Technical Review Screens are passed, the Generating Facility qualifies for Simplified Interconnection, and an executable interconnection agreement for the Customer’s signature; or, (b) if one or more screens are not passed, notification whether Supplemental Review will be required and the results, in writing, of all Initial Technical Review screenings.
3. **Supplemental Review**

a. If a Generating Facility has failed to meet one or more of the Initial Technical Review screens for Simplified Interconnection as proposed, and a quick review of the failed screen(s) cannot determine the requirement(s) to address the failure(s), the Company will notify the Customer upon completing Initial Technical Review that a Supplemental Review as described in this section is needed.

b. The Supplemental Review will result in the Company providing either: (a) Simplified Interconnection, (b) interconnection requirements beyond those for a Simplified Interconnection, and a non-binding, good faith estimate of the Company’s portion of the costs to perform the interconnection requirements identified by the Supplemental Review, or (c) a determination that an IRS is required and a good faith cost estimate and schedule for the completion of the IRS, including an identification of the specific analysis and/or reviews that will be performed as part of the IRS.

c. The Supplemental Review consists of Screens 12 through 14. If any of the Screens are not passed, a quick review of the failed Screen(s) within the timeframe established for Supplemental Review, or any modified time limits, may determine the requirements to address the failure(s), in which case an IRS may not be necessary. Otherwise, an IRS is required. Some examples of requirements that may be available to address the failure of Screens 12 through 14 without the need for an IRS include:

1. Replacing a fixed capacitor bank with a switched capacitor bank.
2. Adjustment of line regulation settings.
Supplemental Review Screens:

**Screen 12 (Penetration Test):** Where 12 months of Line Section minimum load data is available, as measured (or observed) at the feeder or substation, is the aggregate Generating Facility capacity for the Line Section less than 100% of the minimum load for all Line Sections bounded by automatic sectionalizing devices upstream of the Generating Facility?

*If Yes,* continue to Screen 13.

*If No,* a quick review of the failure may determine the requirements to address the failure; otherwise, an IRS is required. Continue to Screen 13. (Note: If an IRS is required, applicants will continue to the IRS after review of the remaining Supplemental Review Screens.)

**Significance:** Aggregate Generating Facility capacity that is less than 100% of minimum load is less likely to result in power flow from the Generating Facility back toward the substation and will have a minimal impact on equipment loading, voltage, system operational impacts, and protection of the Company’s System.

**Note 1:** If measured (or observed) minimum load is not available for a feeder or substation, the utility shall use reasonable efforts to calculate or estimate minimum load from existing data or models. If minimum load data is not available and must be calculated or estimated, Screen 12 defaults to the higher of either 75% of the estimated/calculated minimum load or a percentage of minimum load predetermined and posted by the utility for that feeder. If minimum load on a feeder cannot be measured, observed, calculated or estimated despite reasonable efforts, this screen
defaults to 15% of Line Section peak load, and the Company shall promptly undertake efforts to begin measuring minimum load for that feeder.

**Note 2:** The type of generation will be taken into account when calculating, estimating, or determining feeder or Line Section minimum load relevant for the application of this screen. Solar generation systems with no battery storage shall use the daytime minimum load that is coincident with optimal output of the generator (as may occur during 10 am to 2 pm for fixed panel systems). Other generation uses feeder or Line Section minimum load over the entire day or a timeframe coincident with its output.

**Note 3:** For an inverter-based Generating Facility (e.g., a photovoltaic facility), the facility capacity for purposes of this screen shall be a number calculated by taking either project size in kW or AC inverter rating (whichever is lower) and applying to it a de-rating factor of 10% ** to account for equipment inefficiencies, non-optimal installation conditions, and related factors. The same method shall be applied to determine the aggregate capacity of all inverter-based existing Generating Facilities on the feeder. Minimum load shall be established on feeders with existing photovoltaic generation by the measured “cloudy” day conditions which will likely represent the load with limited photovoltaic generation (20-30% irradiance).

**Screen 13 (Power Quality and Voltage Tests):** In aggregate with existing generation on the Line Section,

a) Can it be determined within the Supplemental Review that the voltage regulation on the Line Section can be maintained in compliance with

** Parties recognize that further discussions are required in the future to substantiate a 10% de-rate factor.
Conservation Voltage Regulation requirements under all system conditions?

b) Can it be determined within the Supplemental Review that the voltage fluctuation is within acceptable limits as defined by IEEE 1453 or utility practice similar to IEEE 1453?

c) Can it be determined within the Supplemental Review that the harmonic levels meet IEEE 519 limits at the point of common coupling?

*If Yes to all, continue to Screen 14.*

*If No, a quick review of the failure may determine the requirements to address the failure; otherwise, an IRS is required. Continue to Screen 14. (Note: If an IRS is required, applicants will continue to the IRS after review of the remaining Supplemental Review Screens.)*

**Significance:** Adverse voltages and undesirable interference may be experienced by other customers on the Company’s Distribution System caused by operation of the Generating Facility.

**Screen 14 (Safety and Reliability Tests):** Does the location of the proposed Generating Facility or the aggregate generation capacity on the Line Section create impacts to safety or reliability that cannot be adequately addressed without an IRS?

*If Yes, a quick review of the failure may determine the requirements to address the failure; otherwise, an IRS is required.*

*If No, Supplemental Review is complete.*
**Significance:** In the safety and reliability test, there are several factors that may affect the nature and performance of an interconnection. These include, but are not limited to:

1. Generation energy source
2. Modes of synchronization
3. Unique system topology
4. Possible impacts to critical load customers
5. Possible safety impacts

The specific combination of these factors will determine if any system study requirements are needed. The following are some examples of the items that may be considered under this screen:

1. Does the Line Section have significant minimum loading levels dominated by a small number of customers (*i.e.*, several large commercial customers)?
2. Is there an even or uneven distribution of loading along the feeder?
3. Is the proposed Generating Facility located in close proximity to the substation (*i.e.* <2.5 electrical line miles), and is the distribution line from the substation to the customer composed of large conductor/cable (*i.e.*, 600A class cable)?
4. Does the Generating Facility incorporate a time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time?
5. Is operational flexibility reduced by the proposed Generating Facility, such that transfer of the Line Section(s) of the Generating Facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues?

6. Does the Generating Facility utilize certified anti-islanding functions and equipment?

d. The Supplemental Review shall be completed, absent any extraordinary circumstances, within twenty (20) business days of completion of Initial Technical Review. The Company, for good cause, without extraordinary circumstances, may modify the time limits to conduct the Supplemental Review and shall inform the Customer in writing of the need to modify the applicable time limits. The modified time limit shall be mutually agreed upon in writing between the Company and the Customer.

e. If the Supplemental Review results in interconnection requirements beyond those for a Simplified Interconnection, the Customer must also complete a Facility Equipment List, which will identify equipment, space and/or data at the Generating Facility location to be provided by the Customer for use in conjunction with the Company’s Interconnection Facilities. The Facility Equipment List will be included as Exhibit B to any interconnection agreement entered between the Company and the Customer. If requested, the Company will provide assistance to the Customer to complete the Facility Equipment List.